

In the Title:

Please amend the Title to read as follows:

A TEST APPARATUS AND TEST METHOD TO CHECK THE EXPOSURE QUALITY  
OF EXPOSED FILM

REMARKS

Claims 1-3 and 8-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns (5,936,741).

The present application relates to a test apparatus for verifying the exposure quality of exposed film, making use of a test pattern of the exposed film relative to a reference pattern. The relationship between the test pattern and the reference pattern is accomplished by use of a test pattern holder. In other words, the test pattern and a reference pattern are examined together, at the same time and in a pre-determined relative position to one another. The examination of the test pattern and reference pattern is accomplished by utilizing a light transmitter and an evaluation device.

To establish a *prima facie* case for obviousness under 35 U.S.C. 103(a), the PTO must establish that (a) there is a suggestion or motivation in the cited reference or in generally available knowledge, to modify the reference to provide the claimed invention; (b) there must be a reasonable expectation of success; and (c) the prior art reference must teach or suggest every claim limitation. *In re Vaeck*, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re Royka and Martin*, 180 USPQ 580, 582 (CCPA 1974).

The Examiner states that “Burns discloses a test pattern holder for holding a test pattern of the exposed film, col. 6 lines 62-67; a light transmitter for the illumination of the test pattern held by the test pattern holder, col. 8 lines 30-60; a light receiver (19) for the reception of the light transmitted through the reference pattern and through the test pattern and for the generation of corresponding electrical received signals, col. 2 lines 39-67 (briefly describes a well known densitometer which includes a light source and a sensor); and an evaluation device for the evaluation of the receive signals of the light receiver with respect to at least one quality parameter, col. 8 lines 46-60.”

Applicant respectfully disagrees with several aspects of these statements regarding Burns. Burns does not disclose a test pattern holder, not at col. 6, lines 62-67 or anywhere else. Nor does Burns disclose illumination of the test pattern held by the test pattern holder, not at col. 8, lines 30-60 or anywhere else. Burns also does not disclose “reception of the light transmitted through the reference pattern and through the test pattern” for the simple reason that Burns only discloses a test pattern, not a reference pattern. Burns also does not disclose the use of a “light transmitter”. The densitometer disclosed by Burns reads the film or paper media 45 directly, without the need for a light transmitter.

Regarding these elements, particularly the “test pattern holder” and its holding of separate test pattern and reference pattern, a *prima facie* case of obviousness has not been presented. Burns does not disclose a test pattern holder because Burns does not have a test pattern separate from a reference pattern in need of being held relative to one another in a fixed arrangement. Thus, there is no suggestion or motivation in Burns

or in generally available knowledge, to add a test pattern holder to the disclosure of Burns; Burns does not teach or suggest every claim limitation of the pending claims. That is, a *prima facie* case of obviousness has not been presented.

The Applicant also respectfully disagrees with the statement that “[i]t would have been obvious to one of ordinary skill in the art to separate the reference marks placing a first set on a “test pattern” and a second set on a reference pattern and then superimpose the patterns to recreate the reference marks since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art.”

No light transmitter or pattern holder is disclosed in Burns. This is because the structure of Burns utilizes a densitometer to directly read a film or paper media. This is completely different from the present invention where a light source is directed through both a test pattern and reference pattern onto a light receiver attached to an evaluation device. The densitometer of Burns requires none of these elements. In addition, because these structures are not required for use with a densitometer the Burns Patent actually teaches away from separating the marks on the test pattern from the reference pattern. The densitometer of Burns would either not be able to read separate test and reference patterns or introduce errors due to the separate nature of these patterns.

Since the test pattern and a reference pattern of the present invention are directly compared with each other in geometrical conformity and temporal coincidence, the test apparatus can be constructed in a comparatively cost-favorable manner with a simple and easy design. Complex and heavy examination instruments – such as densitometers (required by Burns) – are not required. The reason is that the reference pattern (when

superimposed to the test pattern) not only serves for evaluation of the exposure quality of the test pattern, but also allows conclusions regarding the recording quality of the test apparatus itself. Namely, the reference marks of the reference pattern can serve as reference values for the exposure intensity of the test pattern or for the linearity of the received signals generated by the light receiver of the test apparatus.

A further advantage of the test apparatus according to the present invention is the possibility of evaluating not only photometrical, but also geometrical quality parameters. For example, the test pattern may be evaluated with regard to the freedom from distortion of the optical exposure system of the film recorder used. This advantage is also due to the superimposition of a reference pattern with the test pattern, since any (additional) distortion from the optical system of the test apparatus itself is automatically ruled out. Burns is only capable of measuring gray scale such that a certain transfer function can compensate for problems introduced by any component of the raster image processor, recorder or photo processor. The claimed structure of the present invention allows for far greater analysis than Burns suggests.

Thus, the test pattern of Burns is of very limited use and does not provide the technical and economical advantages of the disclosed invention. A separate reference pattern, since it is meant to be used many times, can be of much higher quality and subject to greater quality control than simply applying reference marks to the same piece of film as the test pattern. In addition, the separate reference pattern completely removes any possibility that problems with the test pattern affect the reference markings that are supposed to be of high quality control. In addition, reference marks applied to

the test pattern, as recognized by Burns, are only useful in measuring photometric parameters, not geometrical quality parameters. Without separation of the test pattern from the reference pattern, geometrical parameters cannot be measured, only photometric parameters. Burns does not disclose much of the structure required by the presently pending claims because Burns is for a much different purpose than the current invention.

Additionally, all of the patterns or marks disclosed by Burns (as shown in fig. 1 of US 5,936,741) must be considered as the “test pattern” in the sense of claims 1 and 22, since the patterns and marks disclosed by Burns are always a part of the exposed film or other media. According to the claims of the present application, such patterns and marks are a “test pattern” which shall be compared with a reference pattern. In Burns, it would not make any sense to compare one part of the media with another part of the media, or to superimpose one part of the media with another part of the media.

Because of the limited structure of the test pattern disclosed by Burns, a “densitometer” is required for calibration. The present invention explicitly seeks to forego the use of bulky and difficult to use pieces of equipment other than an evaluation unit.

Based on the foregoing, it is respectfully submitted that none of the pending claims are unpatentable as obvious over Burns. Burns discloses a method and apparatus of limited usefulness. The present invention, by use of a separate reference pattern superimposed with a test pattern, light transmitter and receiver attached to an evaluation device, allows for far more effective measurements, a greater range of

measurements, greater quality control over the reference pattern in a much more economical manner. In addition, the test pattern of Burns requires precisely the instruments sought to be eliminated by the present invention to read the greatly inferior test pattern disclosed by Burns.

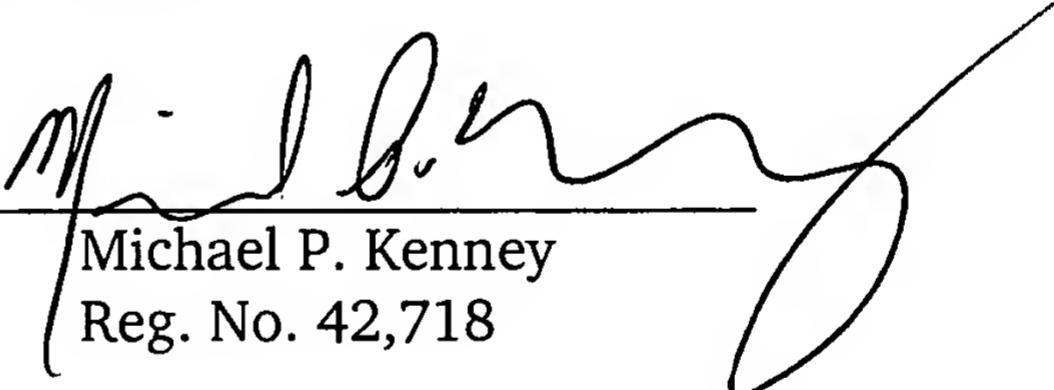
Conclusions

In light of the above arguments, applicants respectfully request withdrawal of all rejections and passage of the pending claims 1-24 to allowance. If there are minor issues that prevent allowance of any or all of those claims, applicants request that Examiner Smith contact the undersigned attorney.

Respectfully submitted,

AMSTER, ROTHSTEIN & EBENSTEIN LLP  
Attorneys for Applicant  
90 Park Avenue  
New York, New York 10016  
(212) 336-8129

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By:   
Michael P. Kenney  
Reg. No. 42,718